Guidelines and Policies in HIV CARE

Hospital Infection Control Committee

Christian Medical College and Hospital

Vellore.

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Guidelines and Policies in HIV CARE

2001

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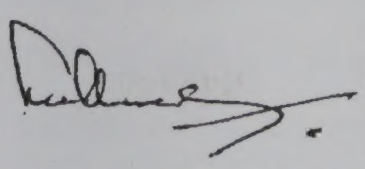
FOREWORD

The Christian Medical College and Hospital, Vellore has been in the forefront of health care in our country for over a century.

The first report of a patient with HIV infection in our country was from the Christian Medical College and Hospital, in 1986. Since then, we have played a leading role in identifying ways and means of responding effectively to the challenges posed by this infection. We were the first in the country to lay down a policy that no patient should be turned away because of HIV infection. We took the initiative in identifying innovative strategies in the art and science of managing patients with HIV infection. Innumerable health care personnel have been trained by our institution and sent to different parts of our country.

This manual is a step in the right direction, to ensure that HIV positive patients receive appropriate, effective and compassionate care. The policies, protocols and precautions are clearly enunciated, and take into account the fact that often we must make the best of the limited resources available in the developing world. I am extremely grateful to the group of senior faculty members who met regularly under the aegis of the Hospital Infection Control Committee to discuss, plan and put together this very important document, which will benefit patients and health care workers.



Dr George Chandy,
Medical Superintendent

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1. INTRODUCTION

The number of individuals living with Human Immunodeficiency Virus (HIV) infection is on the increase in our country. Although the time course of HIV infection is variable, typically, a median of approximately ten years elapses from initial infection to the development of AIDS. During this period, these individuals can approach health care facilities for HIV related and unrelated illnesses. It is the responsibility of each of these facilities to provide appropriate care to these individuals, just like any other patient coming for care.

However, since this infection is associated with occupational risk and lack of curative therapy, special guidelines, taking into account the interests of both the patient and the caregiver, are required for the care of HIVinfected persons. This manual is an attempt to put together the institution's policies and practices concerning the care of HIV positive patients, with specific emphasis on protocols and precautions that all health care personnel in this hospital should follow. Rationale for these is also discussed in brief.

HIV is the only retrovirus that has been associated with serious occupational morbidity and mortality. Observations that viral replication occurs in lymphatic tissue during the period of clinical latency and that virus can be detected in the peripheral lymphocytes and plasma during this period, indicate that the virus can be transmitted at any stage of the disease. The potential for acquiring occupational HIV infection is an issue that causes significant anxiety in health care personnel since occupational injury and exposure to blood and body fluids occur each day in virtually every health care setting. Even though the risk for occupational infection with Hepatitis B virus in the health care environment was known since

1949, a clear focus on defining and minimizing risks in the health care setting was not developed until the HIV epidemic was well underway in the early 1980s.

The issue of 'risk of transmission' of HIV to the health care worker (HCW) is complex. Nonetheless more than a decade of dealing with this issue has led to fairly extensive databases. HCW in this context refers to all paid and unpaid persons working in the health care setting who have the potential for exposure to infectious material including body substances, blood and blood products or medical equipment contaminated with the same. HCW include, but are not limited to emergency medical service personnel, dental personnel, laboratory personnel, autopsy personnel, nurses, nursing assistants, physicians, surgeons, anesthetists, technicians, therapists, students and trainees.

Seroconversion in this context is defined as a case in which seronegative HCW sustains an injury with a device contaminated with blood/body fluids from a HIV seropositive or indeterminate source and seroconverts within the ensuing 6 months. As of June 2000, the Center for Disease Control, Atlanta, USA had recorded 56 such cases in the U.S. An additional 138 infections are considered possible occupational HIV transmissions. Therefore, by CDC evaluation, less than 200 HCW have become HIV positive due to occupational exposure. This is out of the 8.8 million people who work in health care in the US. We have no similar figures for India as reporting and documentation of occupational exposure are still not done in most hospitals.

In prospective studies of health care personnel, the average risk of HIV transmission after a percutaneous exposure to HIV infected blood has been estimated to be approximately 0.3% (95%

CI 0.2 - 0.5%) and after a mucous membrane exposure , approximately 0.09%. The risk of infection is negligible after intact skin exposure to body fluids. The risk of transmission after exposure to fluids other than infected blood- e.g.- saliva, also has not been quantified but is assumed to be negligible.

Although, no reliable data is available, the risk of occupational transmission of HIV and other blood-borne pathogens is assumed to be higher in developing countries because of several reasons:

1. High prevalence of such pathogens in many poorer regions of the world
2. Excessive handling of contaminated needles that results from unsafe and unnecessary injections
3. Use of hazardous diagnostic equipment (non-retracting finger stick lancets and glass capillary tubes)
4. Lack of personal protection equipment
5. Lack of safe disposal systems for contaminated waste
6. Lack of post exposure prophylaxis.

In a study from Tanzania, the annual occupational risk of HIV transmission was estimated at 0.27% for HCW. Among surgeons, the risk was 0.7% if no special protective measures were taken.

In Vellore, HIV infection was documented among sex workers in1986. That same year, the first HIV positive patient with Kaposi's sarcoma, was seen in CMC Hospital.

The state of Tamil Nadu is known to have one of the highest prevalence of HIV infection in the country. The National AIDS Control

Organization (NACO) estimate that the current prevalence of HIV infection in the state is between 0.8 and 1.2%.

Different departments in the hospital have varying rates of HIV infection in their patient populations. The highest prevalence is seen in the general medicine department and medical specialties (approx 20% of all patients tested) and STD Clinic (16.4%), where the test is done only if clinically indicated, to diagnose HIV infection. In surgical specialties and the dialysis unit, where screening is done routinely before a procedure, the prevalence is 0.7%. (Data for 1999-2000)

During 1998, the needle stick injury reporting system was implemented and an appropriate post exposure prophylaxis programme initiated in Christian Medical College and Hospital, Vellore. Since then, there has been no case of seroconversion following occupational exposure documented.

Epidemiologic and laboratory studies suggest that several factors might affect the risk of HIV transmission after an occupational exposure.

These include

1. The quantity of blood or infectious body fluids that the HCW is exposed to.

   Higher risks are associated with-

   a) Injury with a device that is visibly contaminated with blood
   b) Injury after a procedure where the sharp was placed directly in a vein or an artery.
   c) Injury resulting in inoculation of blood or fluids.
   d) Large volume splash over mucus membranes or wounds

2. The depth of the injury.
3. Injury with a hollow bore needle is associated with greater risk as compared to injury with a solid needle. In vitro studies have shown that injury with a solid needle results in inoculation of 50% less blood than a hollow bore needle.
4. Risk is proportional to the frequency and the duration of exposures

The amount of care that is maintained while performing procedures and handling devices can influence the nature and frequency of injury.

5. Exposure to blood from patients with terminal illness is associated with increased risk- possibly reflecting the higher titer of virus in blood, late in the course of AIDS.
6. The prevalence of HIV infection among the patients who are undergoing treatment.
7. Use of protective equipment such as gloves, masks and goggles help reduce risk. Double latex gloving has been shown to reduce the risk from 51% to 7%.
8. The availability of prompt and adequate post exposure prophylaxis also reduce the risk of acquiring HIV infection.

It has been noted that 50% of all exposures result from failure to practice universal precautions, and that 15% of these exposures are due to sharps. In Surgeons, 65% of exposures are caused by sharps and 8% result from exposure to body fluids.

Hospital Policy with regard to treatment of HIV positive patients

1. No patient shall be refused treatment of any form - medical or surgical, curative or palliative - in the Christian Medical College

and Hospital, Vellore on the basis of the patient being HIV seropositive. Treatment offered may be modified, depending on cost-effectiveness, quality of life and anticipated life expectancy of the patient.

2. Testing guidelines are described in detail in chapter 4.

3. If a patient is found to be HIV positive, that information is made known only to the patient and the HCW actively involved in caring for him. This information will not be disclosed in the normal course of events to anyone without obtaining the patient's consent. In treatment areas and wards there will be no visible indication of the patient's HIV status apart from the medical chart itself, which contains privileged and confidential information.

The information provided in the manual is based on various published recommendations and individual experiences of several departments in CMC Hospital.

2. UNIVERSAL PRECAUTIONS

Universal Precautions are a set of guidelines designed to protect healthcare workers from exposure to blood borne pathogens (i.e., HIV, Hepatitis B virus, Hepatitis C virus etc). The original guidelines called the 'blood and body fluid precautions' published in 1983 were for the prevention of transmission of infection from patients known or suspected to be infected with blood borne pathogens. It was soon realized that the majority of patients infected with HBV, HCV or HIV were asymptomatic and that the infection status of most patients would be unknown at the time of presentation. This realization led to the recommendation that blood and body fluid precautions be applied to all patients, a concept known as Universal Precautions.

The term Universal Precautions refers to all patients. It is procedure based and not person based. There is an erroneous impression that Universal Precautions are cumbersome and expensive and not practical in countries where there are limited resources. However if one closely scrutinizes these recommendations, they are relatively simple and do not involve covering the body from head to toe for every procedure.

The precautions to be taken vary with the degree of anticipated exposure. In most cases this means only the use of gloves where contact with blood or body fluids is expected. Masks and eyewear are required only when a splash is anticipated. More rigorous barrier precautions are required only in certain surgeries or procedures where exposure to large volumes of blood or body fluids is anticipated.

Even when they are uniformly applied to all patients, these precautions are more effective and less expensive than universal

testing of all patients for infection with a few selected blood borne pathogens and use of precautions in only those who test positive.

What fluids are potentially infectious?

The CDC considers the following body fluids as potentially infectious:

Blood, semen, vaginal fluid, cerebrospinal fluid, synovial fluid, peritoneal fluid, pleural fluid, pericardial fluid, amniotic fluid, saliva in dental procedures, breast milk in breast milk banking procedures, any body fluid that is visibly contaminated with blood, all body fluids in a situation when it is difficult to differentiate between body fluids and all unfixed tissue or organs from humans.

Universal Precautions may not apply to the following unless they contain visible blood: Faeces, urine, saliva, nasal secretions, sweat, tears, vomitus, and human breast milk.

Cardinal Rules of Universal Precautions

* **Consider all patients as potentially infectious and carrying a blood borne pathogen**
* **Assume all blood, body fluids and tissue covered by Universal precautions are contaminated with a blood borne pathogen**
* **Assume all unsterile needles and sharps are similarly contaminated.**
* **Identify risks before starting any procedure. The type of barrier protection used should be appropriate for the type of procedures being performed and the type of exposure anticipated.**

The practice of Universal Precautions including proper sharp disposal has reduced the risk of exposure from 50% to 20%. 50% of all exposures take place when the HCW is not practicing universal precautions and 15% of these are related to sharps.

It is mandatory that Universal Precautions be practiced for all procedures in CMCH. Failure to do so is punishable. HCW may be asked to bear the cost of investigations and treatment if injuries occur when Universal Precautions are not being practiced.

What does one need to do? The essential features are discussed under three headings i.e. personal protective equipments, prevention of injury with sharps and hand washing.

1. PERSONAL PROTECTIVE EQUIPMENT

All HCWs should routinely use appropriate barrier precautions when exposure to blood or potentially infectious body fluids is anticipated.

Use of protective barriers

* Protective barriers reduce the risk of exposure of the HCWs skin or mucus membrane to potentially infective materials

* Protective barriers include gloves gowns, masks, protective eyewear, and shoes.

Selection of protective barriers

Type of exposure	Examples	Protective barriers
Low Risk		
Contact with skin with no visible blood	* Injections * Minor wound dressing	Gloves helpful but not essential
Medium Risk		
Probable contact with blood; splash unlikely	* Vaginal examination, * Insertion or removal of intravenous canula * Handling of laboratory specimens * Large open wounds dressing * Venepuncture * Cleaning spills of blood	Gloves Gown or Aprons may be necessary
Probable contact with blood; splash likely	* Intubation	Gloves, apron Goggles, mask
High Risk		
Probable contact with blood, splashing, uncontrolled bleeding	* Major surgical procedures * Vaginal delivery	Gloves Water proof gown or apron Eye wear, Mask, Shoes

Heavy duty rubber gloves should be worn for cleanings instruments, handling soiled linen or when dealing with spills

a) **Gloves:**

Gloves should be worn when

* There is contact or potential for contact with blood and/or body fluids
* There is contact or potential for contact with mucous membranes, non intact skin

* There is contact or potential for contact with items/surfaces soiled with blood and/or body fluids

* Performing venipuncture

* Any invasive procedures

Gloves should be removed before leaving the patients' bedside. Do not wash hands with gloves on. Do not reuse disposable gloves. Gloves should be changed between patients and procedures while caring for patients. However, technicians drawing blood for laboratory tests only, need not change gloves between patients unless the gloves are soiled or visibly damaged.

There are two types of gloves available in the hospital:

Examination gloves: These are clean but not sterile - to be used for all procedures not requiring sterile technique.

Sterile gloves: These are used for all procedures where sterile technique is mandatory.

Gloves are not 100% safe. Standards vary according to the manufacturer but a leak rate of 1.5% is considered acceptable. Only 33% of all leaks are recognized or detected - these usually only after blood is seen. **Double gloving affords protection** from these manufacturing defects.

Studies have shown that one layer of surgical gloves reduces the volume of blood injected by solid needles by 70% or more and a second layer of gloves resulted in a further 50% reduction of the volume of blood injected. The magnitude of reduction is less with hollow bore needles.

It is recommended that double gloving be practiced for all surgeries and for conducting deliveries.

Many surgeons do not like to double glove as they feel it reduces tactile sensation and causes numbness. This can be circumvented by taking the time and the effort to adapt.

b) Masks

These should be used for all procedures that are likely to generate droplets of blood and body fluids that may lead to contamination of the eyes, nose or mouth. In certain high risk procedures / surgeries a complete face mask may be required

The traditional mask of four to six layers of muslin offers reasonable protection from a splash. More efficient, high filtration disposable masks that mould to facial contours are also available in the Hospital.

While wearing a mask, care should be taken to see that the mouth and nose are well covered. Masks should be changed every operating session or if they become contaminated with blood or body fluids.

c) Eyewear

Several types are available that cover the eyes both in front and on the sides. Any can be used provided they do not hamper vision and are comfortable. Goggles are available in all theatres in C.M.C.H. It is important that these fit snugly on the face and are directly in contact with the skin over their whole perimeter.

d) Protective clothing

Gowns: For most surgical procedures, linen gowns are used. But these are not impervious to liquids. **Hence it is recommended that a plastic apron be worn under the gown.**

Impervious full-sleeved gowns are also available in the theatre and are recommended for procedures where hands are thrust deep into

the viscera, and much blood loss is anticipated. These are more expensive as they are for single use only.

Shoes: Impervious shoes covering the dorsum of the feet completely are recommended for use in the OR and in the Labour Room. The shoes that are worn should be able to resist accidental sharps injury- e.g.- a needle with a needle holder falling on the foot. Linen overshoes worn over 'Hawaii' chappals will not prevent this type of injury. Each individual-doctor/nurse will be responsible for acquiring and maintaining their own shoes. Models are available in the OR. Wearing linen overshoes over 'street' footwear is also not permitted in areas like OR.

It is important to remember that all protective clothing and equipment must be properly discarded/stored before leaving the work area.

Standard Precautions Advocated for Invasive Procedures

A. Procedures done outside operating rooms

Procedure	**Minimum Protection required**
1. Intravenous access	Gloves
2. Fine Needle Aspiration	Gloves, mask
3. Lumbar Puncture	Gloves, mask
4. Lymph node biopsy	Gloves, mask, goggles, plastic apron
5. Endoscopy	Gloves, mask, goggles, plastic apron
6. Endotracheal intubation/ suctioning	Gloves, mask, goggles, plastic apron
7. Electro myogram	Gloves
8. Dental Extraction	Gloves, mask, goggles, plastic apron
9. CVC Access	Gloves, mask, goggles
10. Arterial puncture	Gloves, mask, goggles

B. Moderate to high risk procedures done in OR

Standard precautions: are the basic pre-requisites for any surgery, irrespective of the patients HIV status. This includes sterile equipment,

aseptic technique and protective equipment. All members of the surgical team actually operating should wear gloves, mask, goggles, plastic apron, gown, and impervious shoes.

These precautions should protect the surgical team from any blood borne pathogen if present. Additional precautions depending on the risks assessed for the surgery may also need to be employed.

Surgery	**Precautions**
Intra-abdominal surgery * e.g. Whipples	Standard precautions Elbow length gloves/impervious gown
Thoracic Surgery * e.g. Mitral Valve replacement	Standard Precautions Face mask Elbow length gloves/impervious gown
Neurosurgery*	Standard precautions Facemask if high risk of splash. Impervious / reinforced gloves or at least double gloving if power tools are used. If large volume spill is expected, use special disposable drapes with funnel to collect spillage
Orthopaedic Surgery*	Standard Precautions Facemask Impervious/ reinforced gloves or double gloving if power tools are used.
Urological Surgery*	Standard precautions Impervious shoes (reaching past ankle) Facemask Elbow length gloves/impervious gown Special disposable drapes to be used where large quantities of fluid are expected to spill.

Normal Delivery	Standard Precautions Elbow length gloves if suturing deep perineal tear
Vascular Surgery*	Standard Precautions Facemask.
ENT Surgery	Standard Precautions Facemask. Impervious/ reinforced gloves or double gloving for procedures using power tools.
Dental Surgery	Standard Precautions. Impervious/ reinforced gloves or double gloving for procedures using power tools Facemask for complex maxillofacial surgery

* Disposable, water retardant gowns are available in theatre and may be used for these procedures.

Use elbow length gloves if the hand past the wrist is to be pushed into viscera

Defining HIGH RISK procedures

It is important to prospectively review any procedure, before actually doing it, to ensure that adequate precautions are taken and that all anticipated risks have been taken into account. In this context 'high risk procedures' are those that entail a greater risk of exposure to the HCW.

The following factors help in assessing risk

* Anticipated long duration surgery

* Anticipated large amounts of blood/fluid loss

* Anticipated use of large number of needles and sharps

* Need for use of irrigation fluids

* Need to use high-speed instruments during the procedure.

If a few of these factors are present, that procedure should be classified as a high-risk procedure and extra precautions taken. The exact nature of these additional precautions will depend on the risk factors- for instance fluid resistant gowns, and full face masks may need to be used.

Other factors may also contribute to risk. For example, long procedures and work without rest induce fatigue. Fatigue leads to carelessness, which can result in injury leading to exposure.

HIV positive cases may be taken up for surgery in any operation theatre. Septic theatre is used if the patient has a secondary disease condition that requires the use of this facility

2. PREVENTION OF INJURY WITH SHARPS

Care has to be taken while using and disposing sharps.

'Sharps injuries' occur commonly

a. During use:

The one who does the procedure, assistants and others are at risk.

Solid needle-while suturing, the tip of the index finger of the non dominant hand is commonly injured.

Hollow bore needle- while drawing blood especially when a hand is used instead of tying a tourniquet, while giving injections and during a needle biopsy.

Other sharps like surgical instruments - while being passed from one person to another.

b. After use.

* Sharps not discarded properly, but left on surfaces and elsewhere

* Recapping of needles

* Passing sharps and sharp instruments

* Attempting to mutilate or bend a needle

* Inappropriate discarding and sorting of sharps

a. Proper Disposal of Needles and Sharps

Accidents with needles and sharps are the commonest mode of transmission of blood borne pathogens to HCW. Therefore it is extremely important that these are used and disposed carefully. Specially designed puncture resistant metal containers of two different sizes are available in the hospital for sharp disposal. The small one is to be placed on treatment trays and near operating tables, while the larger one is to be placed in treatment rooms and nursing stations.

* Needles should not be recapped, bent or broken by hand.

* Disposable needles, and other sharps should be discarded immediately after use into the puncture resistant containers, which should be located at the site of the procedure.

* If a needle has to be removed from a syringe always use needle forceps and exercise utmost care.

* Do not pass sharps from one HCW to another. The person who used the sharp should be the same one who takes it and drops it into the sharps container.

* During surgery, if sharps need to be passed, use an instrument transit tray and do not pass directly by hand.

* Never overfill a sharps container- all sharps containers should be emptied when 75% full.

Take care to prevent injuries by sharp instruments, especially with hollow bore needles that have been used for venipuncture and other vascular access procedures.

How to reduce the chances of injury while operating

Never retract with hands

Ensure good co-ordination among members of the team

Concentrate on the procedure

Take care with cautery tip at all times

Avoid grabbing instruments from the tray- use an intermediate transit tray to reduce accidents while reaching for instruments.

With regard to needles and sharps-

Avoid Needle/sharp tip contact

Use instruments not fingers to grasp the needle/sharp

Never retrieve needles/sharps with fingers

Move unused/used sharps out of the surgical field

Shield the scalpel to prevent the surgeon from inadvertently injuring the assistants

Exercise care with wires and long pins

While tying sutures-

The knot should be away from the needle

Clamp the needle with the tip in the clamp and then cut off the suture

3. HAND WASHING

Hands should be washed if contaminated with blood or body fluids and also after removing gloves. HCW with exudative or weeping dermatitis or cuts and wounds on hands should refrain from direct patient care or handling patient care equipment. Timeliness of hand washing is more important than the technique. Any soap or detergent may be used . (Refer HICC Manual for technique of handwashing)

Precautions to be followed in the Laboratory

Consider all samples to be potentially infected with a blood borne pathogen and follow universal precautions. In most instances this involves wearing of gloves and handling the specimen with care to prevent splash.

Blood collection

Use gloves when drawing blood. Gloves need to be changed if visibly damaged, soiled with blood or if they come in direct contact with blood and body fluids. After drawing blood, transfer it directly into the container assigned, cork or close it and store properly to prevent spillage and accidental breakage. Do not spill blood onto the outside of the container or request slip.

Sharps must be discarded only into the sharps containers.

Transport specimens in boxes or racks meant for this purpose. Do not carry specimen containers in hands or pockets. Double bag specimens known to contain blood borne pathogens and affix biohazard label.

If contaminated on the outside with blood, the lab may have to discard the sample and request for another sample in consultation with the clinician ordering the test.

Handling of clinical specimens

Handle clinical specimens with care and only in areas assigned for the test. Enough space and light must be available in these areas. Use gloves. Remove gloves before leaving the work area. Do not handle doorknobs, phones, books, etc with gloved hands. A biosafety hood is recommended while working with clinical samples.

Always report any accidents, breakages, blood spills or sharp injuries that take place in the lab. Cover blood/fluid spills with sodium hypo chlorite/ bleach/ chlorine solution prepared by dissolving chlorine-releasing tablets (refer chapter 7 for details) before mopping. Use forceps to handle broken glass, and other sharp objects.

Samples are to be disposed either after disinfection / sterilsation or by incineration. If they need to be stored, use leak proof containers and store upright in the assigned refrigerator or freezer.

All wastes from the labs must be segregated before disposal. Ensure that the appropriate color-coded bags are available.

Equipments must be appropriately cleaned and disinfected/sterilised after use.

3. POLICIES AND PRACTICES FOR STAFF AND STUDENTS

The risk of acquiring occupational HIV infection is directly proportional to the risk of exposure to blood and body fluids, especially through injuries by sharp instruments. However this risk in reality is found to be minimal. As was mentioned in earlier chapters, only less than 200 cases due to occupational exposure have been documented in the US till the year 2000.

The most effective method of preventing occupationally acquired infections is adopting safe work practices. Post exposure prophylaxis policy can never be accepted as a substitute for good working practices.

General policies

1. All staff and students are expected to be aware of and practice universal precautions. The Institution will repeatedly educate and re-emphasize this aspect through in-service training programmes .

2. If any staff or student in the course of treating a patient has an exposure to blood or body fluids from the patient, this should be reported immediately (within half an hour of exposure) to the Staff Student Health Services (SSHS) regardless of the patient's HIV status. If injuries are unreported the institution will not be held responsible. Once the injury is reported, SSHS will assess risk on the basis of the status of the index case and the nature of exposure. If indicated, post exposure prophylaxis will be made available and staff are expected to comply. If any staff member fails to do this, then the Institution will not be held responsible for the consequences.

If injury is sustained while not practicing universal precautions, the HCW will have to bear the cost of investigations and treatment.

Activities of the SSHS with regard to HIV infection

1. Education

Safety education starts at the time of employment. A video on universal precautions as practiced in CMCH will be screened periodically and the employee is expected to secure a certain score in a questionnaire that follows the video show.

All staff are informed of the need to report exposure to blood or potentially infectious body fluids to the SSHS duty doctor without delay.

2. Post exposure care

A. Immediate care

For needle-stick injury:

Briefly induce bleeding from wound.

Wash for 10 minutes with soap and water, or antiseptic.

For non-intact skin exposure:

Wash with soap and water or antiseptic.

For mucosal exposure (eg. Splash into eyes):

Irrigate copiously by running a pint of normal saline over10 minutes, the eye being held open by another person.

B. Reporting

All sharps injuries (break of skin with any sharp instrument such as hypodermic needle previously used on a patient) and mucosal exposure (blood or body fluids coming into contact with eyes, mouth, nose etc.) should be reported to the supervisor and the SSHS, immediately following exposure. There is a doctor always on call (contactable by paging after

regular working hours) to receive needle stick injury reports and initiate appropriate management. To ensure the best possible outcome, this doctor must be informed of the injury within half an hour of it taking place.

C. Management

a. Assessing risk of transmission of HIV infection:

For risk assessment of Hepatitis B infection and others please refer to the HICC Manual

1. Test the index patient for HIV antibodies.

   This situation is an exception to the 'informed consent rule'. It is advised that the HCW who sustains the injury collects 5 ml of blood from the index patient (for HIV, HBsAg and HCV testing) and takes it to the SSHS, while going for risk assessment. This can save time.

2. Test the HCW for HIV antibodies after obtaining informed consent.

   The blood samples are sent to Virology lab for screening for HIV antibodies. SSHS duty doctor will check the results within 45 minutes. The confirmatory test is done later. If the HCW refuses HIV testing, this will be recorded.

3. Ascertain the nature of injury and the magnitude of exposure (volume, duration etc)

4. Complete the "needle stick registry."

b. Intervention

For sharp injuries and large volume splash of blood or fluids visibly contaminated with blood onto non-intact skin or mucosa.

If the index case is HIV negative :

Counsel the HCW.

Do not start chemoprophylaxis: consult and confirm the decision with the head of SSHS or one of the experts.

Record the nature of exposure; reason for not starting prophylaxis and the name of the person consulted in the HCW's medical record.

The HCW is offered HIV antibody testing at 0,6,12 and 24 weeks or earlier if they develop symptoms suggestive of seroconversion.

If the index case is unknown:

(e.g. when injuries occur in the lab) - follow-up is advised, prophylaxis is withheld as the risk of the index patient being HIV positive is negligible. Make every effort to identify the index case and verify HIV sero status.

If the index case is HIV positive and HCW is HIV negative:

Follow the protocol given below (modified from MMWR May 1998)

For Indian setting all HIV positive index patients are to be considered as highly infectious (HIV Status Code 2 of CDC-high titer of HIV exposure).

Chemoprophylaxis is best when started within 1-2 hours following exposure. The cut off period for chemoprophylaxis is 72 hours following exposure.

The following investigations are to be done while starting chemoprophylaxis. Do not delay starting chemoprophylaxis for the sake of these investigations.

- Haemoglobin
- Platelet count

- Reticulocyte count
- WBC - Total & differential counts
- Serum creatinine
- Liver function test
- Random blood sugar

Categorization of exposures with recommended prophylaxis:

* Use three drugs (Zidovudine + Lamivudine + Indinavir) for

1. All percutaneous injuries with contaminated sharps
2. Mucous membrane / non - intact skin exposure with large volumes of body fluid for long duration.

* Use 2 drugs (Zidovudine + Lamivudine) for mucous membrane/ non-intact skin exposure with small volume of body fluid for short duration.

* If in doubt, start on 3 drugs immediately and consult a senior person as soon as possible.

Drug Regimen

TYPE	DRUGS
1. BASIC	Zidovudine 300mg b.d + Lamivudine 150mg b.d orally for 28 days.
2. EXPANDED	Zidovudine 300mg b.d + Lamivudine 150mg b.d + Indinavir 800 mg q8h / Nelfinavir 750mg tid, all orally for 28 days.

* Total duration of prophylaxis: 4 weeks
* The pharmacy will stock all 3 drugs used in chemoprophylaxis at all times.
* 'Starter packs' containing one dose of all the drugs will be available at SSHS at all times.

If the index patient is already on anti-retroviral treatment with 1 drug, add 2 new drugs for the staff.

Follow up of HCW

The HCW should be tested for HIV antibodies after 6 weeks, 3 months and 6 months following the exposure, irrespective of the HIV status of the index patient.

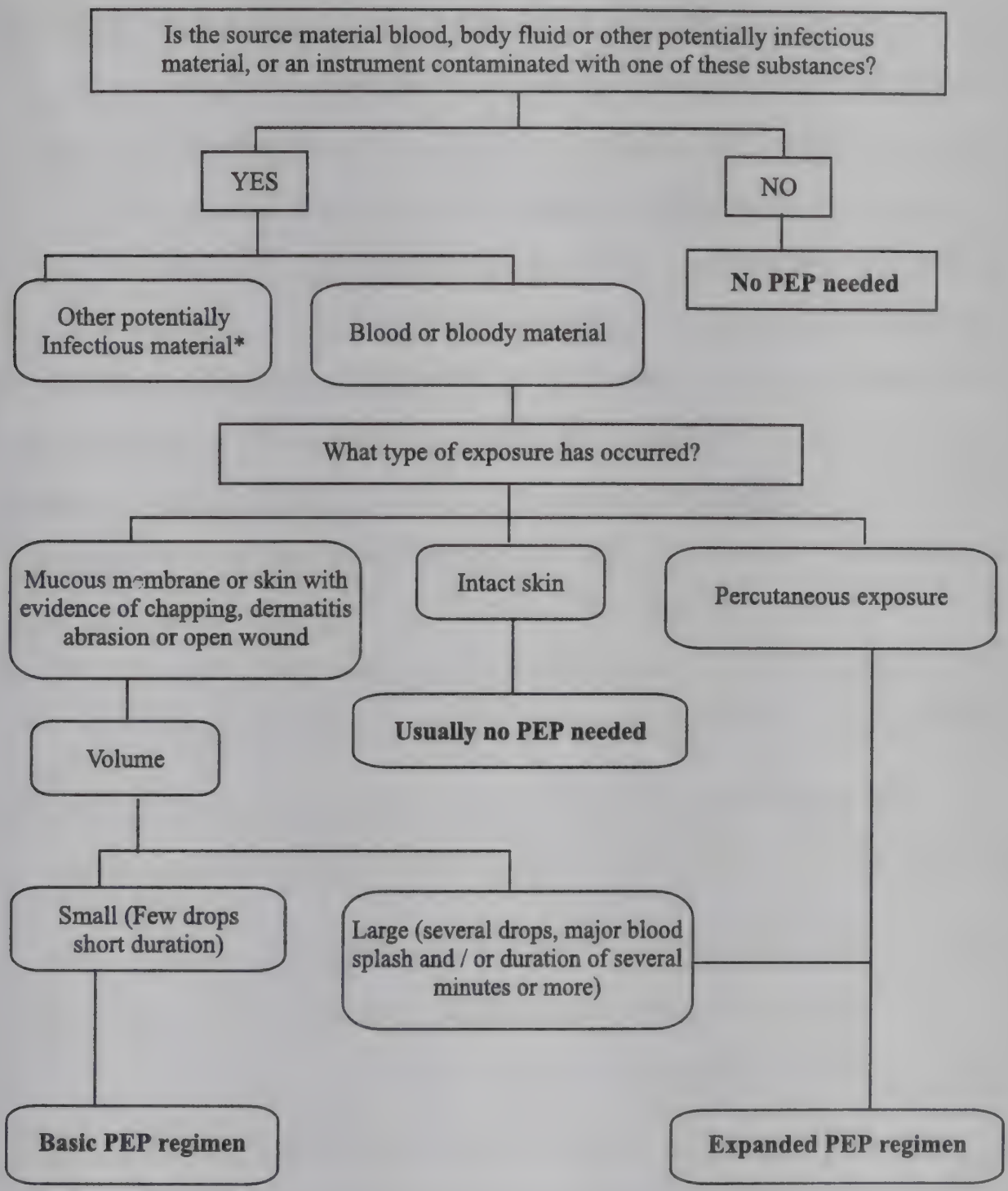
c. Counselling

Counselling of the HCW is performed irrespective of the status of the index case and as appropriate.

Needle Stick Registry

The registry will have information regarding the type of injury, the category of the staff, the time, the place and the circumstances of the injury. Information from the registry is used to assess risks and trends. This database should help reduce the possibility of injury in the future.

Post Exposure Prophylaxis for Health care workers


Is the source material blood, body fluid or other potentially infectious material, or an instrument contaminated with one of these substances?
YES
NO
No PEP needed
Other potentially Infectious material*
Blood or bloody material
What type of exposure has occurred?
Mucous membrane or skin with evidence of chapping, dermatitis abrasion or open wound
Intact skin
Percutaneous exposure
Usually no PEP needed
Volume
Small (Few drops short duration)
Large (several drops, major blood splash and / or duration of several minutes or more)
Basic PEP regimen
Expanded PEP regimen

* Includes semen/vaginal secretions, cerebrospinal fluid, synovial, pleural, peritoneal, pericardial or amniotic fluids or tissue.

Exposures to other infected material must be evaluated on a case-to-case basis. In general, these body substances are considered low risk for transmission in health care settings.

4. GUIDELINES FOR TESTING

HIV testing has generated interest not only in the scientific communities but also among the general public. Various technical, ethical, and legal issues that invariably accompany the HIV test have lead to countries, world over, developing their own HIV testing policies and guidelines. The development of tests to detect HIV infection has made it possible to determine the prevalence of HIV infection and monitor trends of this infection in populations. Though this information is of great value in designing, implementing and monitoring public health programmes for prevention and control, decision to test for HIV requires careful consideration of logistics - laboratory, operational, legal and ethical issues. It is important to remember that decision to test must balance potential benefits to the individual and the public against the social and psychological consequences of HIV testing to the individual and the family.

The early detection of HIV infection differs from similar detection of most other infectious diseases on account of the following reasons-

* HIV infection is a potentially fatal infection.
* The disease is associated with a high degree of discrimination and stigmatization.
* The implications of a positive test go well beyond those related to the physical and mental health of the individual being tested.
* Due to prolonged asymptomatic stage of the infection, one remains fully active and therefore demands an appropriate intervention which maintains the lifestyle and the dignity of the individual.

However with the increasing availability of anti-retroviral agents, due to drastic reduction in costs, and effective treatments for opportunistic infections, there are clear benefits today in testing for HIV for the individual and the community.

* Knowledge of one's HIV status can help HIV positive individuals make decisions about treatment with anti-retroviral agents as well as for prophylaxis and treatment of opportunistic infections. These measures will help to prevent the onset of AIDS as well as improve the quality of life and longevity in immuno-compromised people.

* Research has shown that HIV counselling and testing can and does motivate behaviour change in some individuals. HIV testing and counselling also enables sexual partners to become aware of their status.

* Antenatal testing helps in reduction of mother to child transmission of HIV through appropriate decisions on proceeding with the pregnancy, institution of anti retroviral agents, changes to breast feeding practices, and optimising delivery procedures.

* Reduction in viral loads through the use of anti viral drugs and/ or the use of risk reduction strategies reduces the transmission of the virus and is thus of benefit to the community.

* A negative test result can reduce worry in the `worried well' and in those with high-risk behaviour and, with appropriate counselling, can lead to behaviour changes that help in HIV prevention.

Objectives of HIV testing

1. To monitor the trends of HIV infection in a population or subgroup for facilitation of intervention (surveillance) - Unlinked and anonymous
2. To identify an individual with HIV infection for management (with AIDS indicator disease) or other reasons (asymptomatic infection) - Voluntary
3. To test donated blood or donors of organs and tissues to ensure the safety of the recipients- Mandatory
4. Research - Unlinked and anonymous or voluntary

Strategies for testing

Different objectives require separate testing protocols and the choice of strategy to carry out the test should be made with relevant consideration. These are:

1. Unlinked anonymous testing

This type of screening or testing is not directed to the individual, but has as its objective, the public health surveillance of HIV infection. It is an epidemiological method for measuring HIV prevalence in a selected population with minimum of participation bias. Unlinked anonymous testing usually involves use of blood already collected for other purposes.

2. Voluntary confidential Testing

Testing is done only if the patient consents for the test and is usually for diagnostic purposes. It is important that the issues related to confidentiality receive great attention. All patients should be offered some form of counselling once they have consented to go ahead with the test (Refer Chapter 5).

3. Mandatory Testing

Here testing can be done without the consent of the individual. It is possible to link the data to the individual. Mandatory testing is recommended only for screening donors of semen, organs, tissues or blood in order to prevent transmission of HIV to the recipient. Here also, every effort must be made to inform the donor about the test and to maintain confidentiality.

In C.M.C all HCW who donate blood, have the sample coded for testing purposes. This ensures that the HIV test result remains confidential. Protocols exist in the Virology laboratory and the blood bank to ensure confidentiality of the donor.

Any donor has the option of knowing (or not knowing) the result of HIV test result. The choice is to be indicated on the questionnaire kept in blood bank.

Choice of Test

1. For transfusion safety: Serum is tested using an ELISA. If positive, the sample is considered HIV infected. Any sample testing positive will be discarded. The donor is informed only if he/she had requested for the same by filling up the appropriate column in the form. This strategy is used for ensuring safety of blood/blood products and also donated organs and semen.

2. For diagnosis of full-blown AIDS: Serum is tested using an ELISA, and if reactive, it is subjected to a second ELISA, using a different principle from the first one, to confirm the positive result. The test is reported positive only if the first and second ELISA results are positive. Western Blot can be used as a confirmatory test.

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3. For diagnosis of asymptomatic HIV infection: the algorithm described for diagnosis of AIDS is followed. The positive result of the first ELISA can be confirmed by a Western Blot also.
4. For diagnosis of HIV infection in pregnancy: Strategy for diagnosis of asymptomatic HIV infection described above is followed here also.

Informed Consent

Informed consent of the person to be tested is required before testing for HIV. This doctrine is rooted in the principle that adults of sound mind have a right to determine what will be done to their own bodies ('autonomy'). Unlike ordinary blood tests, a positive HIV test result may have far reaching negative implications. This is an additional reason for requiring a patient's informed consent before performing the test. Testing without consent has been shown to be counterproductive and has driven HIV positive individuals underground (For a more detailed discussion see Chapter 5).

Exceptions -

1. In an emergency when knowledge of HIV status will be essential for making treatment decisions
2. In cases where the patient is of unsound mind and so unable to make a meaningful decision.
3. Unconscious/comatose patients - if HIV testing is clinically indicated.
4. Index case in the case of a needle stick injury.
5. In situations such as blood donation where mandatory testing must be carried out.
6. For children parents or guardians may give consent.

Confidentiality:

The confidentiality of the test result must be strictly maintained to respect the privacy and rights of the individual and to protect them from discrimination and stigmatization. **The test result should be accessible only to HCW actively involved in the patients' care.** The records must be kept secure to prevent access by unauthorized persons.

Special issues

HIV testing in Pregnancy

Screening for HIV infection in pregnancy helps to identify women and their fetuses at risk, who may be offered certain interventions to reduce the risk of transmission of the infection from mother to child.

Counselling and voluntary testing is practiced. Given the large number of women seen in the antenatal clinic and the lack of resources for pretest counselling for each woman receiving antenatal care, printed information sheets (in different languages) are provided for information. Any woman identified as HIV positive is referred to a senior obstetrician for disclosure of results, for counselling and further management. No woman or her family is discriminated against on the basis of her HIV status. To reduce the risks of refusal of screening for HIV by the husband/ partner and the possible implications this may have on the woman, screening of the husband/partner is recommended before the woman is informed about the test result.

HIV testing in relation to surgical procedures and anaesthesia

Though routine preoperative screening is not recommended, testing may be done in selected procedures where a high risk of percutaneous injury to HCW is anticipated, especially where procedures need to be modified, or personnel performing or assisting the surgery may need to be

changed, based on the test result. Each surgical specialty should make a list of procedures where testing may be beneficial.

The patient should be informed when testing is done for HIV (informed consent and information sheets). Patients testing positive should be informed of the result by the surgeon before surgery and offered post test counselling; he/she may be referred to the Infectious Diseases clinic for the same. No patient will be denied appropriate care if they test positive for any blood borne pathogen.

A mandatory HIV test is no substitute for Universal Precautions that need to be adopted for every patient in the hospital.

The National testing policy reiterates the following-

* Mandatory testing should not be imposed as a precondition for providing health care.
* Any HIV testing must be accompanied by offer of pretest and provision of post test counselling services

5. COUNSELLING

Counselling is an essential part of the management of HIV/AIDS and has two general aims; prevention of HIV transmission and support for those affected and their families and well wishers. The policies of the institution regarding counselling for HIV and AIDS are essentially similar to the recommendations of international (UNAIDS) and national (NACO) agencies. In clinical situations HIV testing should always be voluntary, should include informed consent, the offer of pre-test counselling and the provision of post test counselling. In all instances, confidentiality should be respected. Exceptions to these requirements are detailed in the previous section and should be exceptions rather than the general rule.

It has been suggested that pre- and post-test counselling for all who seek testing may in fact discourage some people from being tested by "over dramatising" the testing situation and creating a "crisis" atmosphere. However, the consequences of HIV testing for those who test positive remain serious - personally, socially, and legally. In their personal lives, they must confront the fact of their infection and the meaning of that for their present and future health. Socially, they must confront a range of difficult issues. These include: the potential impact of their diagnosis upon those close to them, and the well-founded fear of stigma and discrimination associated with disclosure that can result in the loss of personal relationships, employment, and medical care, and otherwise dramatic impact upon their quality of life. There are also legal implications to testing positive that set limits to confidentiality and personal relationships. Therefore it would be a serious mistake to trivialise counselling for HIV testing as this would, in the long run, be counter productive.

Informed consent:

Obtaining consent is the basic minimum requirement for HIV testing. Exceptions to this rule are outlined in Chapter 4. In minors, testing should proceed only with the informed consent of a responsible parent or guardian. **Informed consent cannot be implied or presumed**. Obtaining informed consent involves educating, disclosing advantages and disadvantages of testing for HIV, listening, answering questions and seeking permission to proceed through each step of counselling and testing.

The basic steps involved in obtained informed consent **are listed below:**

1. Ensure the competence of the individual to understand relevant information and appreciate consequences.
2. Explain the reasons for HIV testing in that particular instance. E.g.: For prevention of mother to child transmission, clinical indications of HIV related disease, hospital policy for selected surgical procedures.
3. Assess the individual's understanding of the routes of HIV transmission. If needed, educate the patient in this regard. Enquire about the individual's assessment of their risk of being positive for HIV infection and reasons for believing so.
4. Explain the components of HIV testing. E.g.: that a blood test would be done and the details of obtaining the result.
5. Explain that a positive result (or refusal for testing) will not result in refusal of care. Explain that the result would be kept confidential.
6. Ensure that the individual understands the above information.

7. Assess whether the individual has any concerns or questions regarding the above. If the individual does not express any concerns and consent to the test, proceed with the test.

In busy clinics like ours, information about HIV/AIDS and the test can be provided by the use of pamphlets, brochures, information sheets or audio-visual aids. This should be supplemented by one to one communication between the patient and care provider in all instances to ensure opportunities for clarifications and expression of concerns. (Information sheet is given as in Appendix)

The decision of whether to obtain informed consent for HIV testing in writing is left to the individual department /unit. It is good clinical practice to document that consent was obtained for testing after providing relevant information, irrespective of whether the patient signs or not. Observing the spirit of informed consent is more important than merely obtaining the patient's signature.

Informed consent is different from pre-test counselling. The former is essential in all instances when HIV testing is done in the clinical context. Results of sero-surveillance in the institution and surveys of opinions of individuals tested suggest that the majority of patients are not at risk for HIV and readily consent to testing, provided the reasons of testing are explained and confidentiality and the non-discriminatory policies of the institution are emphasised. Not all patients require or want detailed pre-test counselling, provided they understand the details and implications of the test and correctly assess their risk of being positive. It is recommended that all patients detected to be HIV positive are offered post-test counselling and a personalised management plan, either by a senior clinician or by staff at the infectious diseases clinic.

Pre-test counselling should be offered if any person:

* expresses concerns about the test
* has many questions, misconceptions or seems reluctant to test
* has a history of high-risk behaviour
* has clinical indications of HIV/AIDS related conditions
* requests the need to talk further about the test and its implications

Pre-test counselling for HIV provides an opportunity for an individual who is at risk of being infected with the virus or those with specific concerns about the implications of the test to discuss their concerns in a confidential manner. It also provides the potentially seropositive individual time and an opportunity to prepare for the test result. Pre-test counselling also provides an opportunity for providing and reinforcing HIV prevention messages. Pre-test counselling should always be personalised and realistic (tailored to the risks, circumstances and special needs of the individual), culturally appropriate, sensitive to the individual's situation, developmentally appropriate (consistent with the age and comprehension of the individual), relevant (avoid providing irrelevant information) and linguistically specific (information provided in appropriate terminology and language). HIV counselling is not a lecture and should be interactive and flexible to the particular individuals needs.

The basic steps involved in pre-test counselling are listed below and is intended only as guide and not as a structured, inflexible checklist to be followed in a mechanical manner.

Steps involved in pre-test counselling:

1. Emphasise confidentiality and reassure that a positive result will not result in refusal of care.

2. Assess the individual's risk for infection with HIV. Explore for a history of sex with a potentially infected individual, especially if unprotected. Consider also risk behaviour in spouse or sexual partner. Explore injecting practices (parenteral drug abuse especially if needles were shared with other drug abusers) and history of sex with a drug user. Check for past history or current evidence of a STD. Consider the possibility of blood transfusions or blood products infected with HIV. Are there clinical indicators of opportunistic infection or HIV related disease?

3. Personalise this information for the patient by using the results of the risk assessment process to indicate that testing is indicated (or, in the case of the worried well, not indicated)

4. Explore the patient's knowledge of HIV and AIDS. Ensure that the individual understands the difference between HIV and AIDS. Explain details of the HIV test, including the window period, schedules of testing, costs and details of obtaining the test result. Explain how HIV is and is not transmitted. Explain the meanings of positive and negative test results. Clarify misconceptions.

5. Discuss the potential advantages and disadvantages of knowing one's HIV status. Discuss potential treatment options available for the particular individual.

6. If the individual does not to wish to test, consider the need for additional sessions / referral to senior colleagues / referral to counsellors at the ID clinic. If these offers are not accepted or do not change the person's decision, review the need to test. If indicated by hospital policy, such as prior to surgery, inform the patient that the procedure would be undertaken with the

assumption that the individual is potentially HIV infected and the implications of this.

7. If the individual is amenable to testing, discuss how the patient would cope with a positive test result. Explore the patient's coping skills, previous reactions to stress or a past history of depression, anxiety, suicidal behaviour, potential impact of the result on family and social networks. Discuss with whom the result could be shared with and with whom the result should not be disclosed. Be alert to signs that a positive result would provoke a catastrophic reaction and earmark such individuals for particular care and post-test counselling should the result be positive.
8. Discuss partner notification issues. Discuss ways in which this may be facilitated.
9. Provide information on reducing risk of transmission. Consider referral for management of alcohol or substance dependence.
10. Discuss practicalities of the test and assess whether the person requires more time or further sessions of counselling. Fix time of follow up appointment.

Post - test counselling:

Post-test counselling is an integral part of testing for HIV. If the test is negative, it still provides an opportunity to reinforce HIV prevention messages and change risk behaviours. If the test is positive it provides an opportunity to help the patient understand and cope with the implications of the result, plan a personalised management strategy, strengthen social supports and discuss the importance of risk reduction strategies.

Steps involved in post-test counselling:

If the result of the test is negative:

1. Disclose the result and give the patient time to absorb the information and express any feelings.
2. Check for the need for re-testing by reviewing risk behaviour, if any, within the previous weeks. If re-testing is needed, discuss the procedures involved, clarify comprehension, clarify misconceptions and reinforce the need for risk reduction strategies.
3. Reinforce preventive measures. Explain that a negative test does not confer immunity against HIV infection.

If the result of the test is positive:

1. Before disclosing the result, evaluate the need for further confirmatory testing. Allow for some time in dealing with the patient's reactions and in forming a personalised management plan. Review information, if any is recorded from the pre-test counselling session, that might suggest a catastrophic reaction if the test result were positive. **Positive HIV test results should not be given over the telephone, during busy outpatient clinics, or by unsupported junior members of a clinical team.**
2. Assess the patient's emotional state. Wait for the patient's lead on when and how to disclose the information. Lead the person to ask about the result.
3. State that the results of the test indicate the presence of infection with the HIV virus.
4. Wait and allow for time for the information to be absorbed and feelings to be expressed. Facilitate the expression of the patient's

feelings by focussing on non-verbal and verbal cues of distress. Listen, observe and empathise by affirming statements and gestures. Resist the temptation to trivialise the patient's feelings or provide false reassurances or to shorten the interview or be overwhelmed by the patient's feelings.

5. In asymptomatic individuals differentiate between HIV and AIDS.

6. Re-explore with whom the patient plans to disclose the result. Discuss reactions to this disclosure and how this can be minimised. Consider partner notification and offer help and support in breaking the news to family or friends if desired.

7. Review medical management options and make plans for tests, treatments. Consider referral to the Infectious Disease Clinic run every Wednesday afternoon in the department of Dermatology and co-ordinated by Medicine Unit I where integrated, multidisciplinary care is available for HIV positive individuals. If more urgent referral is required, contact Medicine Unit I for the services of medical staff or trained and experienced counsellors.

8. Re-emphasise risk reduction strategies. Explore patient's concerns and offer clarifications. Discuss barriers to changes in risk behaviour.

9. Avoid overloading the patient with information. It takes time for the patient to adjust to the demands and realities of his or her situation.

10. Provide hope and encouragement in a realistic manner without

arousing false hopes. Focus on the here and now and make plans for the coming days and weeks. Offer follow - up counselling sessions within the next few days. Offer a contact number for emergencies.

11. In the ensuing days, consider enlisting the support of family and spouse. Family members will require time and individual counselling to come to terms with the diagnosis and the implications and concerns about the future.

Confidentiality:

Due to the various negative consequences that a diagnosis of HIV not infrequently provokes, confidentiality is an integral part of testing for HIV. The following situations require special mention.

1. The consent of the patient should be obtained before discussing the test results with any family member. This is especially relevant in the case of couples where there is a need to discuss matters of reducing sexual transmission and planning children. HIV positive patients should be encouraged, counselled and supported to disclose their status to their spouses or potential marriage partners. If the person is ultimately unwilling to disclose his/her status in spite of adequate attempts at counselling, the clinician should, always in conjunction with other / senior members of the team, consider notifying the spouse, if this is feasible, after informing the patient of the need and intent to do so. Physicians have a duty to warn and protect sexual partners of HIV positive individuals and are protected by legal precedents in doing so. However, this should not be the initial or regular response to such situations and such breaches of confidentiality should

always be taken after deliberation and reasons for the same clearly documented. The law only permits such disclosure to the person directly at risk and to no one else.

2. If a patient's HIV positive status is recorded in the discharge summary or any document that might compromise the patient's right to confidentiality, the patient should be duly informed and counselled regarding the implications of this. If the patient refuses consent to disclose this information, his/her wishes should be respected, unless over ridden by law or other statutory requirements.

6. GUIDELINES FOR TREATMENT

1. Anti-retroviral agents currently available

Currently available antiretroviral drugs belong to two major classes:

* Reverse Transcriptase Inhibitors (RTIs)

* Protease Inhibitors (PIs).

Reverse Transcriptase Inhibitors are further divided into 2 groups:

* Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

* Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs).

All these drugs act by blocking the action of enzymes that are important for replication and functioning of HIV. Once HIV invades a macrophage or T lymphocyte, the enzyme reverse transcriptase converts the viral RNA into a DNA copy, which is then integrated into the host chromosome by the enzyme integrase. A third enzyme, protease, catalyses the cleavage of viral core proteins for the final assembly of viable virions.

1.1. Nucleoside Analog Reverse Transcriptase Inhibitors

(* Paediatric doses)

Generic Name	Dose	Comments and Common Side effects
Zidovudine/ Azidothymidine (ZDV/AZT)	300 mg twice daily * 90-180 mg/m^2 8 hrly neonates-2 mg/kg 6 hrly	Nausea, vomiting, headache, fatigue, anemia, neutropenia, myopathy
Lamivudine (3TC)	150 mg twice daily * 4 mg/kg 12 hrly	Minimal toxicity
Zidovudine + Lamivudine	1 tablet twice daily	Combination tablet containing 300 mg of AZT

		and 150 mg of 3TC
Didanosine (ddI)	400 mg once daily or 200 mg twice daily on empty stomach (>60 kg body weight); 250 mg once daily or 125 mg twice daily (<60 kg body weight) * 90 mg/m^2 12 hourly	Peripheral neuropathy (in 15%), pancreatitis; avoid alcohol. Contains antacid; ok to give tablets at same time as all NRTIs, nevirapine and efavirenz; delavirdine and indinavir must be taken at least 1 hour prior to ddI; nelfinavir can be taken 1 hour after ddI
Zalcitabine (ddC)	0.75 mg three times daily * 0.01 mg/kg 8 hourly	Peripheral neuropathy, oral ulcers
Stavudine (d4T)	40 mg twice daily (>60 kg body weight); 30 mg twice daily (<60 kg body weight) * 1 mg/kg 12 hourly (upto 30 kg)	Peripheral neuropathy
Abacavir (ABC)	300 mg twice daily * 8 mg/kg twice daily	Hypersensitivity reaction (2-5%): malaise, fever, nausea, vomiting, and morbiliform rash. Resolves within 2 days after discontinuation. DO NOT RECHALLENGE.

1.2. Non-Nucleoside Reverse Transcriptase Inhibitors

Generic Name	Dose	Comments and Common Side effects
Delavirdine	400 mg (2 tablets) 3 times daily	Transient rash. P450 3A4 inhibitor.

. Efavirenz	600 mg (3 cap) once daily initially at bedtime * once daily in children > 3 years old < 15 kg - 200 mg 15-19 kg - 250 mg 20-24 kg - 300 mg 25-32.5 kg - 350 mg 32.6-39 kg - 400 mg	Initial dizziness, mood changes, insomnia, and transient rash. P450 3A4 inducer
Nevirapine	200 mg (1 tablet) once daily for 14 days, followed by 200 mg twice daily * 120 mg/m^2 daily for 14 days followed by 200 mg/m^2 12 hrly	Rash, Stevens-Johnson Syndrome, hepatitis. P450 3A4 inducer.

1.3. Protease Inhibitors

Generic Name	Dose	Comments and Common Side effects
Amprenavir (APV)	1200 mg (8 cap) twice daily with or without food * 22.5 mg/kg twice daily (children > 3yrs old)	Rash (20%), diarrhea, nausea
Indinavir (IDV)	800 mg (2 cap) every 8 hours on empty stomach (1 hr before or 2 hr after meals) or with snack containing <2 g of fat. * 500 mg/m^2 8 hourly	Kidney stones in 5 to 10%; good hydration (1.5 L water/day) essential. GI intolerance. GI intolerance. Store in original container which contains desiccant; without this, IDV is stable for only about 3 days

Lopinavir (LPV)	Coformulated lopinavir 400 mg + ritonavir 100 mg (Kaletra) (3 cap) twice daily	GI side effects common but mild. No significant food effect.
Nelfinavir (NFV)	1250 mg (5 tab) twice daily or 750 mg (3 tab) 3 times daily with food * 20-30 mg/kg thrice daily	Diarrhea common (10-30%)
Ritonavir (RTV)	600 mg (6 cap) twice daily; start with 300 mg twice daily and increase to full dose over 10 days. * 400 mg/m^2 12 hourly	Nausea, diarrhea, numb lips for up to 5 weeks; occasional hepatitis. Store capsules in refrigerator. Stable at room temperature for up to 1 month. Used at lower dosages as pharmacokinetic enhancer of other protease inhibitors.
Saquinavir hard gel cap (SQV-HGC)	600 mg (3 cap) 3 times daily with fatty meals	Well tolerated. Limited potency due to poor absorption (4%). Essentially replaced by SQV-SGC
Saquinavir soft gel cap (SQV-SGC)	1200 mg (6 cap) 3 times daily with fat containing food (>28 g)	Improved absorption compared to SQV-HGC. Long-term storage in refrigerator. Stable at room temperature for 3 months

2. Highly active anti-retroviral therapy (HAART) is a combination of anti-retrovirals that achieves maximal and most durable suppression of viral replication.

No currently available antiretroviral agent is sufficiently potent to provide sustained suppression of viral replication on its own. At best, monotherapy yields incomplete viral suppression for a very limited duration

of time: 0.6 to 0.8 log reduction in the viral load for 6 to 8 months. Thereafter, drug resistance is inevitable. Monotherapy is therefore not recommended for the treatment of HIV infection. Historically, controlled clinical trials comparing dual nucleoside regimens of 2 NRTIs to monotherapy demonstrated enhanced 'virologic' efficacy as well as a survival benefit, in patients with advanced HIV infection (CD4 counts below 350 cells/mm^3). Therapy with 2 NRTIs can potentially achieve a 1.5 log reduction in viral load, but these regimens do not achieve or sustain suppression of HIV replication to the same extent as the three-drug regimens. Dual nucleoside therapy, despite some benefits on an individual level, did not have any significant beneficial impact at the population level in terms of reduction in HIV related mortality. Because of the limited duration of the clinical and immunological benefits of dual nucleoside therapy, and because viral replication is very likely to continue during dual nucleoside therapy, a maximally suppressive regimen (HAART) should be the standard of care for these patients.

For optimal efficacy, antiretroviral drugs, usually from different classes, must be used in combination. Several combination regimens with demonstrated effectiveness in achieving durable suppression of HIV replication are available. These regimens are composed of three to four drugs, with two NRTIs generally forming the backbone. The commonly used combinations are: 2 NRTI + 1 PI, 2 NRTI + 1 NNRTI, 2 NRTI + 2 PI, 1 NRTI + 1 NNRTI + 1 PI and 3 NRTI.

Possible NRTI combinations (not in preferred order) are:

* ZDV + ddI, or 3TC
* D4T + ddI or 3TC

Zidovudine and Stavudine should not be used together because of their antagonistic effect on each other. Similarly, Didanosine and Zalcitabine may lead to additive neurotoxicity and should not be combined.

There is no data at present demonstrating superiority of any one of the above acceptably potent initial regimens over the others and recommendations for a specific initial regimen or for a specific combination of individual drugs cannot be made. The choice of a particular regimen remains individualised, with consideration given to the strength of supportive data, the tolerability of the regimen, the potential for adverse effects, likely drug-drug interactions, convenience and likelihood of adherence and the potential for alternative treatment options should an initial combination fail.

The most important barrier for HAART in India is the high cost of the individual drugs. This has implications for decisions such as when to start therapy, which therapeutic regimens to use, and what to do when treatment fails. Combination of NVP + ZDV + 3TC or NVP + d4T + 3TC are the least expensive regimens currently available in India.

3. Indications for HAART: The best time to initiate anti-retroviral therapy is not known.

Arguments in favour of early initiation of antiretroviral treatment include:

* HIV infection almost invariably causes progressive immune damage (possible risk of irreversible immune system damage if therapy is delayed)
* disruption of the immune system and the building of viral reservoirs are early events

* the natural history of untreated HIV infection includes selection for more diverse and more virulent strains of HIV

There is, however, an increasing tendency to defer initiation of ART until immune deficiency becomes measurable and the risk of disease progression becomes relevant because:

* the risk of disease progression is low until substantial CD4+ cell loss has occurred
* immune recovery is impressive even when therapy is delayed
* any regimen has toxicity and cost.

According to current published international guidelines, the following broad criteria guide the selection of patients for initiation of therapy:

* all patients with symptomatic HIV infection, regardless of CD4+ count and viral load levels
* all patients with CD4+ counts below 200/mm^3, regardless of viral load
* all patients with a high viral load (i.e. above 55,000 copies/ml by RT - PCR) and CD4+ cell count < 350/mm^3

Current guidelines recommend that treatment be considered for patients in the intermediate range, i.e. plasma viral load between 20,000 and 55,000 copies/ml (RT-PCR) and CD4+ cell counts between 200/mm^3 and 350/mm^3.

Treatment of asymptomatic patients, with CD4+ cell counts above 350/mm^3, and viral load < 55,000 copies / ml is generally deferred as the probability of significant immune system damage and of clinical progression of HIV infection remains low.

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4. Monitoring: Response to ART is monitored clinically and biologically. The most important biological measurements are the concentration of HIV - RNA in plasma (viral load) and CD4+ cell counts. These measurements correlate with clinical outcome.

The desirable "virologic" endpoint is a plasma viral load that is "below the limits of detection", within 4 to 6 months of starting treatment and the achievement of a minimum decline from the baseline viral load of 1.5-2.0 log by the end of the first month of treatment. In patients with higher baseline plasma viral loads (e.g. above 100,000 copies/ml by RT-PCR) maximal suppression of viral replication may take a longer time.

When optimal response to therapy is achieved, the median CD4+ cell rise is 100 - 200 cells within the first year. The CD4+ cell response may lag behind the "virologic" response in timing and at times the two responses may even be discordant.

The optimal frequency of viral load monitoring is unknown. In general, plasma viral load is checked within 1 month of initiating therapy and two-monthly thereafter until the virologic goal of therapy, i.e. viral load below the limits of detection, is achieved. Following this, plasma viral load may be checked every 3 to 4 months. However, in resource poor settings, the frequency of monitoring of plasma viral load and CD4 counts maybe less frequent (at baseline, 4 - 6 months after starting therapy and 6 - 12 monthly intervals thereafter).

5. Advantages and disadvantages of HAART

a. Advantages:

* Improved survival

* Delayed disease progression

* Fewer opportunistic infections

* Improved quality of life in symptomatic patients

b. Disadvantages:

* Cost

* Pill burden

* Drug toxicity

* Drug interactions

* Need for strict adherence

* Not a cure

6. TB Medication/Antiretroviral Drug Interactions: The Rifamycin antibiotics (Rifampin & Rifabutin) are inducers of the cytochrome P450 enzyme system in the liver that metabolises PIs and NNRTIs. This can lead to a reduction in the blood levels of the PIs and the NNRTIs. This interaction may result in ineffectiveness of the antiretroviral drugs. Most problematic drug interactions occur between rifampin and PIs or NNRTIs.

No significant drug interactions are noted between TB medications and NRTIs.

6.1. Possible options for ART in patients with active TB:

* Defer ART until TB treatment is completed

* Defer ART until the 'continuation phase' of treatment for TB, and use Ethambutol + Isoniazid as continuation.

* Treat TB with Rifampin containing regimen and use Efavirenz + 2 NRTIs

7. What should not be done:

* Starting ART in a person in whom the diagnosis of HIV infection has not been confirmed.
* Providing ART without capacity to meet patient's other needs such as sufficient nutritional support, adequate home care, etc.
* Starting ART in a patient not motivated to follow such treatment or in a person who is unaware of his/her seropositivity.
* Prescribing ART when its continued, long-term provision cannot reasonably be guaranteed.
* Starting ART without providing adequate information about how and when to take the drugs, potential side effects and interactions with other drugs, etc.
* Prescribing monotherapy (unless it is for the prevention of perinatal HIV transmission).
* Providing ART without the capacity to diagnose, treat or prevent opportunistic infections.
* Starting ART without a minimum of laboratory monitoring facilities
* Continuing ART despite serious side effects.

8. Management of HIV infection in pregnancy:

Antiretroviral therapy (for the mother during the antenatal period and in labour and for the infant), elective caesarean section and avoidance of breast-feeding have been shown to reduce the risk of mother-to-child transmission of HIV infection.

8.1. Antiretroviral therapy: Consider the following options depending on **affordability** and the period of gestation, when the woman is first seen:

Option 1 (Best)

* Oral AZT 300 mg bd from 14 weeks or earliest after this period of gestation
* Oral AZT 300 mg q3h in labour
* Oral AZT 2 mg/kg qid for the infant for 6 weeks starting immediately after birth

Option 2

* Oral AZT 300 mg bd from 36 weeks or earliest after this period of gestation
* Oral AZT 300 mg q3h in labour
* Oral AZT 2 mg/kg qid for the infant for 6 weeks starting immediately after birth

Option 3

* Oral AZT 600 mg stat and 300 mg q3h in labour
* Oral AZT 2 mg/kg qid for the infant for 6 weeks starting immediately after birth

Option 4 (Least effective)

* Oral AZT 2 mg/kg qid for the infant for 6 weeks starting immediately after birth or within first 48 hr

Option 5

* Oral Nevirapine 200 mg stat in labour
* Oral Nevirapine 2 mg/kg for the infant within 72 hr of birth

8.2. Discuss infant feeding during the antenatal period. Offer the following options based on the socioeconomic status of the family:

Option 1 (Best)

* No breast feeding
* Advise on safe alternatives to breast milk

Option 2 - For patients who cannot afford "safe alternative" to completely replace breast feeding

* Exclusive breast feeding for the first 3 months and advise on early weaning

8.3. Management in antenatal period

Screen for other STDs and treat if she has any other STD

* Assess fetal growth using SFH measurements.
* Avoid invasive fetal tests and external version
* Supplement iron, folic acid and multivitamins
* Discuss options regarding mode of delivery and record the choice of mode of delivery in case notes
* If termination of pregnancy is the preferred option, discuss future fertility and contraception
* If post abortion sterilization is not the preferred option, discuss a reliable temporary method of contraception

8.4. Management in Labour

* If HIV status is not known prior to labour, screen for HIV on admission to labour ward
* Use universal precautions in the management of all women, irrespective of HIV status

* If a prior plan has been made regarding management in labour, follow the plan unless there are contraindications.

* If a prior plan of management has not been made, discuss options of route of delivery, antiretroviral therapy and infant feeding plans if time permits.

* Offer elective caesarean section as an option if:

The woman has been counselled in the antenatal period about this option and has selected this option after understanding the implications (including post operative morbidity and costs)

The woman has been on antiretroviral therapy

There are other obstetric indications for caesarean section

* Do not consider caesarean section as an option if

The woman after counselling does not wish to undergo this operation

Membranes have ruptured for more than 4 hr

If there has not been adequate time for counselling and informed decision making

If the viability of the fetus is in doubt (major malformations, extreme prematurity)

If vaginal delivery is the preferred option

* If induction of labour is required, use vaginal or oral prostaglandins

* Avoid amniotomy for induction and/or augmentation of labour as far as possible.

* If membranes are ruptured, lavage the birth canal every 4 hr with 0.25% chlorhexidine

* Do not use fetal scalp electrodes
* Avoid episiotomy as far as possible
* If instrumental delivery is indicated, use forceps instead of ventouse

8.5. Post delivery

* Observe for sepsis in the post-partum period
* Advise on perineal hygiene and safe disposal of sanitary pads
* If breast feeding is the preferred option:

  Ensure that the baby is exclusively breast fed

  Ensure care of nipples
* If breast feeding is not the preferred option

  Ensure that there is a safe alternative to breast feed
* If puerperal sterilisation is the preferred option, this should be done before discharge
* If sterilisation is not the preferred option, advise on a reliable contraceptive method
* Arrange for follow up in the ID clinic

7. SPECIAL ISSUES IN CHILDREN

The vast majority of pediatric HIV infection is due to perinatal transmission.

Over the last decade the number of HIV-infected children has increased significantly due to the worldwide increase in HIV prevalence among women of child- bearing age. Children exhibit significant differences in HIV disease manifestation, as well as different virologic and immunologic responses to the virus when compared to adults.

HIV has a bimodal distribution of disease presentation and progresses more rapidly in children than in adults. Approximately 20% of infected children are "rapid progressors", progressing to develop AIDS-defining conditions within the first 2 years of life and dying before 4 years of age. Intermediate / slow progressors (60 to 75%) will develop evidence of severe immunosuppression only by 7 to 8 years of age, and a small group of long-term survivors (5 to 10%) remain healthy till their teenage years.

HIV RNA levels are generally low at birth (<10,000 copies/ml), rise to extremely high values (>100,000 copies/ml) within the first 2 months of life, and then fall very slowly over the next few years of life, reflecting the lower efficiency of the immature developing immune system in containing viral replication.

Interpretation of CD4 lymphocyte number among children must consider age as an important variable. CD4 lymphocyte number and percentages in healthy infants are considerably higher than in healthy adults, slowly declining to adult values over the first 6 years of life. The pediatric immunologic staging system for HIV infection includes age-

related definitions of immune suppression. While the CD4 absolute number that defines a specific level of immune suppression changes with age, the CD4 percent does not. In both infected children and adults, CD4 count declines as HIV infection progresses, and patients with lower CD4 cell counts have a worse prognosis than patients with higher counts.

Immunologic categories based on age-specific CD4 lymphocyte count & percentage

	Age of Child		
	< 12 months	**1-5 years**	**6-12 years**
Immune Category	number /µl (%)	number /µl (%)	number /µl (%)
Category 1: No suppression	>/=1500 (>/= 25%)	>/= 1000 (>/= 25%)	>/= 500 (>/= 25%)
Category 2: Moderate suppression	750-1499 (15-24%)	500-999 (15-24%)	200-499 (15-24%)
Category 3: Severe suppression	< 750 (<15%)	< 500 (<15%)	< 200 (<15%)

Diagnosis

Transplacental passage of maternal anti-HIV antibodies that remain in babies upto the age of 18 months necessitates the use of virologic assays to make a diagnosis of HIV infection in young infants.

Because perinatal transmission of HIV infection occurs in the majority of instances late in the third trimester of pregnancy, virologic tests performed at birth identify only 30 to 50% of HIV-infected infants, with the remainder developing evidence of viral infection only several days to weeks following birth.

Definitive diagnosis of perinatal infection rests on finding two positive results from the infant's blood (excluding cord blood) at two separate times using one or more of the following HIV virologic (non antibody) tests:

- HIV nucleic acid (DNA or RNA) detection
- HIV p24 antigen test in a child > / = 1 month of age
- HIV isolation (viral culture)

Because of the low sensitivity of p24 antigen testing, and the expense and the time taken for HIV viral culture (2 to 4 weeks), DNA PCR or RNA RT-PCR remain the virologic assays of choice for early diagnosis of HIV infection in infants.

A child born to an HIV-infected mother is considered uninfected if two virologic assays (one performed at more than 1 month of age and the second at 4 months of age or later) are persistently negative, *in the absence of breast-feeding*.

In the absence of hypogammaglobulinemia, two negative HIV antibody tests performed beyond 6 months of age with an interval of at least 1 month between assays can also reasonably exclude HIV infection in children with no clinical evidence of HIV disease.

In children older than 18 months of age, the diagnostic algorithm of HIV infection is similar to that in the adult.

Infants breast – fed by HIV infected mothers can acquire infection much after birth.

Antiretroviral therapy in children

When to initiate therapy

There is a strong theoretical rationale for early initiation of therapy in the neonate. Control of viral replication in perinatally infected infants is inadequate, as evidenced by the very high levels of HIV RNA observed in the first few years following perinatal infection. Starting therapy during this early period of viral replication could preserve immune function, diminish viral dissemination, lower the viral "set point", and result in improved clinical outcome. However data on the pharmacokinetics of antiretrovirals in the neonate is still being collected. Most drugs, including ZDV, 3TC and Nevirapine, require dose adjustment due to prolonged clearance. More data is required to decide adequate doses for all available antiretroviral agents in the neonate and very young infant, as underdosing will foster drug-resistant strains of HIV and overdosing can lead to toxicity.

Initiation of antiretroviral therapy is recommended in all HIV-infected children with symptomatic HIV infection (CDC Clinical Categories A, B or C) or evidence of immune suppression (Immune Categories 2 or 3), regardless of age or viral load.

Many experts recommend initiating therapy in all HIV-infected infants and children regardless of age, symptom status, immunological status or viral load in order to treat all infected children early in the course of disease prior to immunological deterioration.

In asymptomatic children older than 1 year at diagnosis with normal immune function and low risk of disease progression (low viral load), where there are concerns for safety, adherence and the durability of response, treatment may be deferred to a later date, with close monitoring of the patient's clinical, virologic and immunologic status. In such children, treatment should be promptly initiated in the following situations:

- Development of clinical symptoms
- CD4 number or percentage declining rapidly to values approaching Immune Category 2
- Children older than 30 months with HIV RNA levels consistent with treatment recommendations for HIV-infected adults (> 10,000 copies/ml)
- Any child with HIV RNA levels > 100,000 copies/ml
- HIV RNA levels increasing > 5-fold in children <2 years or > 3-fold in children >/= 2 years of age.

Choice of initial retroviral therapy

Combination therapy is recommended for all infants and children. Recommended regimens are as follows:

Strongly recommended:

- 1 PI + 2 NRTIs

  (Preferred PIs: Nelfinavir, Ritonavir, Indinavir.

  Preferred NRTI combinations: ZDV + ddI ; ZDV + 3TC)

- Efavirenz + 2 NRTIs
- Efavirenz + Nelfinavir + 1 NRTI

Alternative regimen

- Nevirapine + 2 NRTIs
- Abacavir + ZDV + 3TC

Offer only in special circumstances_(when the caregiver has concerns regarding compliance, or the patient and family prefer the regimen):

- 2 NRTIs
- Amprenavir + 2 NRTIs / Abacavir

Not Recommended:

- Any monotherapy (except for ZDV prophylaxis in the first 6 weeks of life when used to prevent perinatal HIV transmission)
- d4T + ZDV
- ddC + ddI
- ddC + d4T
- ddC + 3TC

The goals of therapy are to achieve maximal and durable suppression of viral load, to achieve restoration of immune function and to improve the quality of life by reducing HIV-related morbidity and mortality. Monitoring the efficacy of therapy is done by regular clinical followup and HIV RNA and CD4 testing at 4 to 6-monthly intervals. As presently available antiretrovirals suppress only plasma viremia and virus still remains within lymph node "sanctuaries" within the body, duration of antiretroviral therapy has to perforce be lifelong, with the attendant problems of patient compliance, viral resistance, acute and long-term toxicities, and cost.

Refer Chapter 6 For Doses

Other issues

Supportive care in the HIV-infected child include the following:

- Early recognition and prompt treatment of recurrent bacterial infections and opportunistic infections.

- Prophylaxis against *Pneumocystis carinii* pneumonia (PCP) with cotrimoxazole (10 mg/kg/day of Trimethoprim in 2 divided doses given on 3 consecutive days in a week) in the following situations:
  - from 6 weeks to 12 months of age in the HIV-exposed infant with indeterminate or confirmed HIV infection
  - any child with severe immunosuppressiom (Immune Category 3)
  - any child with a history of PCP.
- Annual testing for tuberculosis with PPD testing and chest roentgenograms.
- Immunizations to be followed as per the national immunization schedule. Though live vaccines are contraindicated for HIV-infected children in developed countries, no documented cases of vaccine-associated paralytic poliomyelitis in HIV-infected children make OPV the vaccine of choice in developing countries, and the WHO recommends BCG vaccination to all children in countries with high rates of tuberculosis.
- Nutritional support with dietary supplements, and growth monitoring.
- Social and family support including psychosocial support, continuation of schooling and family life, education of neighbours and care providers, disclosure of HIV status to the older child and adolescent, and pain relief and terminal care when needed.

8. NURSING CARE

Since CMCH admits HIV positive patients and those with AIDS for both curative and palliative care and also for unrelated illnesses, certain guidelines are to be followed regarding their admission, in order to maintain confidentiality and at the same time protect the HCW

Universal precautions are mandatory in handling all patients. If a patient is known to have AIDS, extra care needs to be taken to ensure that this immunosuppressed individual does not acquire a nosocomial or opportunistic infection.

Admission

HIV positive patients without secondary infections that necessitate isolation can be admitted in any general or private ward. Those with infections such as pulmonary tuberculosis are admitted directly to Isolation Ward.

Confidentiality

The patient while in the ward should not be identified separately as being HIV positive. That information will of course be included in the medical chart, which is a confidential document. No Biohazard sticker or red bag should be put at the patient's bedside.

The nursing staff should be sensitive to the fact that the stigma, still associated with the disease, may be hurtful to the patient.

Nursing Care

1. Be aware of what are infectious body fluids and substances. See the chapter on universal precautions.
2. Clean gowns and the equipment to take personal protection such as gloves, masks and goggles should be available and easily accessible in all wards.

3. Bed linen should be changed at least once every two days or when soiled. Patient's gown should also be changed once every day or whenever soiled.

These are to be transported to the laundry for high temperature wash.

4. Separate urinals, bedpans and thermometers are to be used for all patients.

5. Mackintoshes should be washed with detergent and water and then disinfected with 7% Lysol.

6. Reusable autoclavable items used on patients known to harbour blood borne pathogens (and organisms such as MRSA) are collected in the red bag kept at the nursing station in each ward. There is no need to use separate bags for different patients. These bags should never be placed at the patients bedside. The red bag is to be autoclaved in toto before cleaning and then reassembled for sterilization.

7. Waste disposal is as per hospital guidelines i.e. infectious non-plastic waste in the yellow bag, infectious plastic waste in the pink bag, and noninfectious waste in the black bag. Adequate numbers of these bags and sharps containers should be available in all wards.

8. All samples for laboratory tests must be double bagged and 'biohazard' label affixed.

9. In the event of death, death care is to be given as per the nursing protocol. Patient is to be dressed in own clothes and kept in mortuary after placing in a body bag,

Nursing Care in special areas

1. Isolation ward: Nurses should take appropriate precautions for secondary infections as given in the HICC manual in addition to universal precautions.

2. Postnatal nursing: Babies are not given bath following delivery. Bath is given only after the baby is stable and transferred to the post natal ward. Ensure that the tub used for giving the baby bath is disinfected before next use.

3. Nursing in Intensive care- Patients in the ICU are generally more vulnerable because of the number of interventions that are done for intensive care. For the same reasons staff also have a higher risk of exposure

   Care needs to be taken with ventilated patients. Ensure barrier protection, sterile equipment and sterile technique for all invasive procedures including suction. Patients with tracheostomies can pour out secretions initially. Extra care must be taken to ensure that the wound site does not become infected. Mask and goggles are mandatory for suctioning.

9. HOUSEKEEPING

Housekeeping is an important aspect of maintaining high quality patient care. The hospital is an area that requires regular satisfactory cleaning and disinfection

Cleaning schedules are the same in all areas regardless of the HIV status of the patients being cared there. If there has been contamination of the ward with blood or body fluids, disinfection must be undertaken using 1% sodium hypochlorite.

Cleaning schedule

1. The floor is to be cleaned at least twice a day using detergent and water. Immediate disinfection and then cleaning should be undertaken if there is a spill.
2. The walls are to be washed with a brush using detergent and water once in two weeks.
3. High dusting must be done with a wet mop at least once a week.
4. Fans and lights are to be cleaned with soap and water once a month.
5. All work surfaces are to be disinfected by wiping with 7% Lysol and then cleaned with detergent and water twice a day. Immediate and appropriate cleaning should be undertaken if there is contamination with any infectious material.
6. Cupboards, shelves, beds, lockers, IV stands, stools and other fixtures should be cleaned with detergent and water once a week, after each patient and when contaminated.

7. Curtains should be changed once a month or whenever soiled. In isolation wards and intensive care units curtains are changed more frequently.

8. If the cot is soiled with blood or infectious body fluids, immediate disinfection and cleaning should be carried out.

Storerooms are to be mopped and high dusted frequently

Bathrooms should be cleaned at least once a day. Toilets are cleaned with a brush and detergent or carbolic acid.

Disinfection Protocol

Wear gloves while handling spills.

Use chlorine solutions for decontaminating. Three varieties of chlorine solutions are available in the hospital

1. Sodium Hypochlorite (Dakin's): This has to be freshly diluted before use. There should be at least 10,000 ppm of available chlorine while disinfecting. This can be obtained by using a 1:10 to 1:100 solution. Cover the spill with the solution either directly or using an absorbent paper, and leave it for at least 10 min before mopping.

2. House hold bleach: This is cheaper, but the actual chlorine content is not fixed. It is best to sprinkle the powder over the spill and keep it covered for 10 min at least before mopping.

3. Sodium Diisochlorocyanurate (NaDCC) tablets: These can be stored as dry tablets and can be diluted according to manufacturer's instructions just before use. Storage and handling are much easier than the sodium hypochlorite solution. Here also

the final solution should contain 10,000 ppm of available chlorine. (One tablet is diluted in one litre of water to obtain this concentration. However, check the manufacturer's instruction with each lot before using. If in doubt, contact the drug information service)

If none of these are available, 7% Lysol can be used for disinfecting spills.

Housekeeping in the Operation Theatre

The theatre is an area that requires regular and satisfactory cleaning. Regular protocols for the same are available in the HICC manual. There are no changes in the general housekeeping protocol for the theatres when handling HIV positive patients. Special emphasis must be placed on waste segregation and handling of sharps.

HIV positive patients may be taken up for surgery in any operation theatre. Septic theatre is used if the patient has a secondary disease condition that requires the use of this facility.

Housekeeping in Isolation Ward

Cleaning of all articles in the room including the walls and the bathroom should be done with detergent and disinfect with 7%Lysol.

After discharge

Keep an ultraviolet light in the room facing each direction for half an hour in a two bedded room and 1 hour in a 4 bedded room.

Clean pillows and mattress with detergent, disinfect with 7% Lysol and dry in sunlight for 24 hours.

Remove bed sheets, curtains, gowns and dusters, soak in 7% Lysol for one hour and then send to the laundry.

Soak bed pan, urinal and kidney basin in 7% Lysol solution for one hour, wash with detergent and dry in sunlight.

Soak thermometer tray and its contents in 7% Lysol after cleaning.

Utensils used by the patients are washed, boiled and replaced.

Red linen bag is used in Isolation ward and is kept in the treatment room.

PATIENT INFORMATION SHEET

Among the investigations required for your care, we may need to test you for the presence of HIV and Hepatitis B infection. The HIV infection spreads through sexual contact, sharing needles and contaminated blood or blood products. An HIV positive individual can transmit the infection to the husband/ wife/ partner. A pregnant mother who has the infection can transmit it to her child. Therefore it will help you to know your HIV status and will help us plan your treatment.

We look for HIV infection in your body by testing a sample of your blood. If this test suggests the presence of the virus in your body, you may have to have another test to confirm this. If the first test is positive, then it is advisable that your husband / wife / partner is also tested. Once the test result is confirmed, we will make the result known to you.

Please keep in mind that this test is done for your own and your family's wellbeing. If this test reveals the presence of disease, then you will be advised regarding appropriate treatment. Your care will not be compromised if you test positive. If you have any concerns regarding this test, do not hesitate to discuss them with the doctor treating you.

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